Claims

What is claimed is:

     1.   A system for graphics compression and display, comprising:

     a compression component; and

     a decompression component;

     wherein said compression component comprises a simplifier module and a lossless compressor module, and

     wherein said decompression component comprises a decompressor module and a renderer module.

     2.   A system as in claim 1, wherein said simplifier module is configured to perform lossy compression.

     3.   A system as in claim 1, wherein said simplifier module is operable to receive BMP files and to output compressed versions of said received BMP files as image files.

     4.   A system as in claim 2, wherein said lossy compression comprises histogram-based quantization.

     5.   A system as in claim 4, wherein said histogram-based quantization comprises:

     performing a straight rounding quantization over a raster graphic;

     performing histogram-based color reduction over said raster graphic; and

     computing local histograms for each pixel position in said raster graphic.

     6.   A system as in claim 5, wherein only colors within a pre-defined tolerance level from the color of a current pixel are included in each local histogram.

     7.   A system as in claim 6, further comprising changing the color of a pixel to match the most common color in its local histogram.

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8. A system as in claim 7, wherein said pixel color is changed to match the most common color when the frequency of said most common color exceeds the frequency of the color of said pixel by a pre-defined threshold.

9. A system as in claim 1, wherein said lossless compressor module is operable to perform run-length encoding of color regions.

10. A system as in claim 1, wherein said lossless compressor module is operable to create a device independent color table.

11. A system as in claim 1, wherein said lossless compressor module is operable to estimate encoding parameters.

12. A system as in claim 1, wherein said lossless compressor module comprises a predictor operable to predict upcoming color and run-length.

13. A system as in claim 12, wherein said predictor predicts color and run-length based on a previous row of pixels and previous pixels in a current row.

14. A system as in claim 1, wherein said lossless compressor module uses multi-state Huffman coding.

15. A system as in claim 1, wherein said lossless compressor module uses adaptive Golomb coding of color values.

16. A system as in claim 1, wherein said lossless compressor module uses fixed table prefix coding of run-length values.

17. A system as in claim 1, wherein said decompressor module is operable to receive a compressed file and output a corresponding file that is in a device independent intermediate format.

18. A system as in claim 17, wherein said device independent intermediate format comprises one or more of the following:
decoded global parameters;

a device independent color table; and

pairs of colors and run-lengths.

19. A system as in claim 1, wherein said decompressor module comprises a predictor synchronized to a predictor in said lossless compressor module.

20. A system as in claim 1, wherein said renderer module is operable to receive a decoded device independent color table and convert said table into one or more device dependent colors.

21. A system as in claim 1, wherein said renderer module is operable to perform one or more of the following:

color transformations on color values;

anti-aliasing;

dithering of color values;

gamma correction;

scaling of color values; and

truncation of color values.